Aug. 24, 2016 / Board Hearing
Montezuma Well Services, Inc. "MWS"
Recapture Brine Disposal Facility "the Facility"
Landowner; SITLA (SULA #656) **DOGM is working closely with SITLA on facility cleanup operations & permits.*

History; the Facility is an E&P wastewater disposal facility that was permitted by the "Health Dept" in 1985. At that time it was owned & operated by "Hay Hot Oil Inc.". In 1987, the permit was transferred to the Div. of Oil, Gas & Mining & from 1987-1992 some corrective actions/violations were issued for various operational issues (unlined trench being used to store oily waste, full pits/cease ops, etc).

The facility was sold to MWS in 1992 & has been operated by them ever since. From 1997-2008 various corrective actions/violations were issued to MWS; minor issues were resolved in a timely manner (FB, remove oil skim, housekeeping). MWS made several attempts to remedy the major issues (cleanup of Pit A & facility bond increase from $20,836), but due to slow progress the Division issued a Division Order to perform cleanup operations in 5/2008, followed by Board Action in 12/2009-current.

The Facility; currently consists of a tank battery system (NW corner of Pit A), 3 pits "Pit A, Pit B & Pit C", and 4 LF areas for cleanup purposes only (involving soil remediation of Pit A & OBP "oil burn pit" contents).

Tank Battery; when the Facility is operational, produced E&P wastewater is trucked to the Facility & unloaded into the tank battery system that separates the oil & wastewater. The oil is stored in a tank & sold. Wastewater is also stored in a tank(s) for further oil/water separation before it is diverted to evaporative Pit B.

Pit A; was full of oily material & a tank from a lightning strike in 2000 that blew out the bottom of the tank & tossed it into the pit. Pit A was emptied in April 2015; MWS is planning to reclaim it when funds are available.

Pit B; is an active E&P wastewater evaporative pit (reconstructed 2009) operating at only 50% capacity in accordance with Board Order & until the Facility "secondary containment" is constructed; full capacity, 82,058 barrels/-2' FB. The enhanced evaporation system is being used on non windy days, and the leak detection sump is being monitored on a weekly basis to ensure liner integrity.

Pit C; is lined & full of sediment & crystallized salt; it will require cleanup & reconstruction prior to any future use, or reclamation.

Land Farm
Cells 1-6 (2005); original LF. *Full of oily soil from Pit A
Cells 7 & 8 (2010); Expansion #1. *Full of oily soil from Pit A
Cells 9 & 10 & Cell 11/west half (2011); Expansion #2. *Full of oily soil from the OBP
Cell 11/east half & Cell's 12-17 (2013); Expansion #3. *Full of oily soil from Pit A

10-12" of oily material from Pit A & OBP was spread across LF Cells 1-17.

Cell 1; soil remediated 3/2014.

Cells 2-8; tilling & turning of the material (front end loader) occurring on a quarterly basis. In addition, organic material "manure and/or straw hay" is being added as needed to facilitate microbial activity & aid in the bioremediation process.

Cells 9-17; windrowing & turning of the material (front end loader) occurring on a quarterly basis. In addition, organic material "manure and/or straw hay" is being added to facilitate microbial activity & aid in the bioremediation process. Cells 11 & 17 are a priority for the upcoming months; these cells contain higher concentrations of oil & require larger amounts of added organic material.

Periodic soils testing is being conducted to monitor soils remediation progress until it meets DOGMs' Cleanup Levels; from bi-annually to annually due to lack of funding.

Monitoring & maintenance of "containment berms" surrounding the LF cells is being conducted to prevent runoff.

DOGM Cleanup Levels:
Salinity:

Electrical Conductivity "EC" <4 mmho/cm "millimhos per centimeter" which approximates TDS of 2560 mg/l.
Exchangeable Sodium Percentage "ESP" <15%
Sodium Adsorption Ratio "SAR" <12

Total Petroleum Hydrocarbon "TPH" Content:

1% or 10,000 ppm TPH is recommended for sites with low environmental sensitivity.

OBP "oil burn pit"; was located at Cell 11/east half; the E ½ was reclaimed in 2012 & W ½ in 2013. OBP reclamation & soils remediation was not a part of the original order; it was conducted in addition to other cleanup/reclaim ops at the request of SITLA & DOGM.

Facility "secondary containment"; plans to construct it in Spring of 2017 on hold due to lack of funds.

Geology; the surface formation is the Jurassic Age Morrison Formation consisting of deposited fan material of sandy clay derived from nearby cliffs/bluffs; underlain by the Westwater Canyon member (a fine grained sandstone with inter-bedded shale's & mudstones, 180' thick) and the Recapture member (a fine to medium grained sandstone with inter-bedded siltstones, & mudstones, 285' thick). *10' deep test borings in the area (Cap Allen, P.E./Civil & Solar Engineering "CSE") described the soils as "light sandy clay classified as CL under the Unified Soil Classification System or an inorganic clay of low to medium plasticity, gravelly clay, sandy clay, silty clay, and lean clay", and stated that "the soil is of a type whose permeability decreases with saturation due to wetting effects and swelling and hydrophilic attachment of clay structures"; percolation rate tests were also conducted & the report states that "the findings corroborate the hydrophilic properties of the soil and indicate that over a long period of time a very slow percolation rate, characteristic of fine silts and clays, can be expected".

Hydrology; the facility is not in a floodplain or wetland area. The nearest surface water is the SJ River, its' closest point is approx. 1.25 miles south. Recapture Creek, .6 miles east, is a seasonal/intermittent stream, 35 miles long, that rises on the southern slope of the Abajo Mountains and flows south skirting to the east of White Mesa; it drains Bluff Bench and enters the SJ River approx. 5 miles east of the city of Bluff, Ut. No major drainages bisect the facility site; minor drainage(s), winter runoff, and/or storm water sheet flow is being diverted around the facility. The facility elevation is approx. 4585' GL. The aquifer zone nearest to the surface is approx. 240' below ground level (Cap Allen, P.E./CSE). *MWS/Mel Capital 8/2015 nearest groundwater aquifer is located at a depth of 120-140' below surface & MWS has a water permit issued by the State of Utah to withdraw water from the SJ River for facility/LF purposes "tank with sprinkler system" to wet down LF cells prior to tilling to expedite soils remediation.